International Journal of Modern Physics D 2013 vol.22 N10

Isotropization in chaplygin matter universes connected by a wormhole

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Abstract

Chaplygin anisotropic matter governing the cosmological evolution in two identical universes with an intermediate static spherically symmetric region is considered. The static region contains a wormhole allowing one to pass between two horizons. The metric in the nonstatic region represents a kind of an anisotropic Kantowski-Sachs cosmological model starting from a horizon instead of the initial singularity. A classification of the cosmologies with a monotonic late stage is presented. It is shown that only one scenario can involve a de Sitter regime. The scales in the de Sitter phase allows one to describe the earliest accelerated expansion on the classical level. © 2013 World Scientific Publishing Company.

http://dx.doi.org/10.1142/S0218271813500673

Keywords

Chaplygin gas, Nonsingular cosmology, wormhole